

REMARKS

Claim 10 stands rejected under 35 U.S.C.103(a) as being unpatentable over Jung et al. (U.S. 6,317,173) in further view of Moon (U.S. 5,942,310). Applicant respectfully traverses this rejection because Applicant submits that neither of these cited references, whether taken alone or in combination, discloses or suggests a second storage capacitor electrode made of the same material at the data wirings, as in claim 10 of the present invention, as amended.

Jung discloses a liquid crystal display utilizing a storage electrode 430 and data line/wiring 600. (See Figs. 2-3). Jung specifically discloses that the storage electrode 420 is part of a storage electrode line 430, which is made of the same layer as the gate line/wiring 400. (See col. 6, lines 39-48). Jung further discloses that the data line 600 is not formed simultaneously with the storage electrode 420, but instead only on top of at least one intervening layer (insulating film 500) formed on top of the gate line 400. (See col. 6, lines 56-63). Jung even discloses that the data line 600 is made of different materials than the gate line 400. (See col. 6, line 62). Accordingly, Applicant submits that Jung specifically teaches away from the present invention in this regard.

Moon discloses a liquid crystal display formed similarly to that described by Jung. Source and drain electrodes 8 and 9 are formed over storage electrode 4 with at least one insulating layer 7 intervening between the storage electrode 4 and the source and drain electrodes 8 and 9. (See Figs. 2A-2E; col. 4, lines 10-35). In other words, as with Jung, the

storage capacitor of Moon is not formed with the data wirings, and Applicant submits therefore that the storage electrode 4 is not made of the same material as the data wirings.

In contrast, claim 10 of the present invention has been amended to recite, among other things, that a second storage capacitor electrode is made of the same material as the data wirings and sandwiched between a first insulating film and a second insulating film.

Applicant submits that neither Jung nor Moon discloses or suggests these features of the present invention. Accordingly, the Section 103 rejection of claim 10 based on a combination of Jung and Moon is respectfully traversed for at least these reasons.

Claim 11 stands rejected under 35 U.S.C. 103(a) as being unpatentable over Yamamoto et al. (U.S. 6,088,071) in further view of Moon. Applicant has amended claim 11 to recite features similar to those discussed above in traversing the rejection of independent claim 10, and Applicant respectfully traverses. Applicant submits that neither of the cited references, whether taken alone or in combination, discloses or suggests a second storage capacitor electrode formed of the same material as the data wirings.

Applicant traverses the inclusion of the Moon reference in this rejection for at least the reasons discussed above. Applicant submits that Yamamoto also fails to disclose the features of the present invention. Yamamoto discloses an auxiliary capacitor 300 for a liquid crystal display having an upper electrode 50b formed as part of a capacitor line 50B. (See Fig. 13; col. 5, lines 52-55). The electrode 50b is specifically disclosed to be formed prior to the formation of signal lines 22A and 22B, and even separately from the scanning

line 15B. Accordingly, Applicant submits that the upper electrode 50b is not made of the same material as the signal lines 22A, 22B.

Accordingly, for these reasons and those discussed above, Applicant submits that none of the references cited against claims 10 or 11 teach or suggest a second storage capacitor electrode made of the same material as the data wirings. According to the second storage capacitor electrode construction of the present invention, implantation of impurity to the first storage capacitor electrode (which is under the second storage capacitor electrode) can be performed at the same time as implantation of impurity to the source electrode, including the first semiconductor layer, without increasing the cost or number of steps required in the fabrication process of the liquid crystal display. Accordingly, the present invention is able to realize these specific advantages over all of the cited prior art references, and Applicant respectfully traverses the outstanding Section 103 rejections of claims 10 and 11 for at least these additional reasons.

Claims 12-13 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Matsushima (U.S. 5,917,563) in further view of Ikeda (U.S. 5,182,661). Applicant respectfully traverses this rejection because Applicant submits that neither of the cited references, whether taken alone or in combination, discloses or suggests a second storage capacitor electrode that has a peripheral area overlapping a perimeter area of the pixel electrode when observed from a direction perpendicular to the substrate, as in independent claim 12 of the present invention, as amended.

Matsushima discloses a liquid crystal display having a pixel electrode 25 and an upper electrode 51a. (See Fig. 8) Applicant submits that this upper electrode 51a is not shown to have a peripheral area overlapping a perimeter area of the pixel electrode 25, when observed from a direction perpendicular to the substrate. Similarly, Ikeda also fails to show these recited features of the present invention. Ikeda discloses a second storage capacitor electrode 62 and a pixel electrode 22, but does not show any peripheral portion of the second storage capacitor electrode 62 overlapping a perimeter area of the pixel electrode 22 when seen perpendicularly. (See Fig. 4A). In fact, Ikeda shows the entire second storage capacitor electrode 62 to be contained within the area of the pixel electrode 22 (seen perpendicularly). Accordingly, for at least these reasons, the Section 103 rejection of claims 12-13 and 15 based on a combination of Matsushima and Ikeda is respectfully traversed.

Moreover, Applicant wishes to point out to the Examiner that independent claim 12 had been amended in Amendment C, filed November 13, 2002, to incorporate the allowable subject matter (as indicated by the Examiner) from claim 14. Claim 12, and its dependent claims 13 and 15, should have been found allowable by the Examiner for at least those reasons. In the outstanding Office Action (Paper No. 12), the Examiner has not stated any basis for reversing his earlier determination that claim 14 contained allowable subject matter. In fact, the Examiner has not even indicated that he has reversed that earlier determination. Furthermore, the Examiner has not pointed to where, in any of the cited references, the previously allowable subject matter from claim 14 can now be found.

Accordingly, for at least these additional reasons, the rejection of claims 12-13 and 15 should be withdrawn.

Claims 12-13 and 15 stand rejected under 35 U.S.C. 103(a) as being unpatentable over Ikeda if further view of Jung. With respect to the Ikeda reference, and with respect to the rejection of claims 12-13 and 15 in general, Applicant respectfully traverses for at least the reasons discussed above. Applicant further traverses as follows.

As discussed above, Jung shows a storage electrode 420 formed as a portion of a storage electrode line 430. (See Fig. 2). Jung specifically shows that the entire storage electrode 420 is contained within the pixel electrode 800, when seen perpendicularly to the substrate, and no peripheral area of the storage electrode 420 overlaps any perimeter area of the pixel electrode 800. Accordingly, the rejection of claims 12-13 and 15 based on a combination of Jung with Ikeda is respectfully traversed.

For all of the foregoing reasons, Applicant submits that this Application, including claims 10-13 and 15, is in condition for allowance, which is respectfully requested.

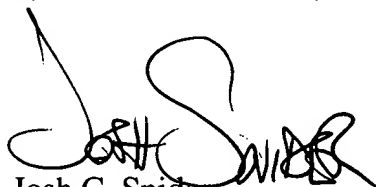
The Examiner is invited to contact the undersigned Attorney if an interview would expedite prosecution.

Respectfully submitted,

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